REMARKS/ARGUMENTS

The undersigned thanks Examiner Pickard for conducting a personal interview on December 12, 2007 with the undersigned and Gilles Degremont, patent counsel for the Assignee, Technip France S.A. during which the rejected claims and primarily claim 1 was discussed in view of the prior art. Applicants' representatives pointed out that the present invention is concerned with the operating condition of a double-walled subsea pipeline typically used for hydrocarbon low, wherein an inner pipe is either carrying hydrocarbon or is operable, being enabled to carry hydrocarbon through it, while an annular space between the inner and the outer pipe is operable, being enabled for transmission of gas along the annular space. All of the claims are directed toward a water stopping seal assembly in the annular space.

As pointed out during the interview, all claims are concerned with normal operating conditions of the inner pipe, the annular space and the seal assembly. Operating conditions does not include other conditions of assembly and installation of the double-walled subsea pipeline, including the introduction of the inner pipe in the outer pipe or assembly of the double walled pipeline to a subsea installation or to a surface installation. Those are not normal operating conditions as now specifically defined in claim 1, in terms of the operations and the capabilities of the pipeline.

During the interview, the Examiner and the Applicants' representatives discussed the references that were applied to reject claims in the Final Office Action. The references are discussed below in responses to the specific grounds of rejection in the Action as they were discussed during the interview. For the substance of those arguments presented at the interview, note the remarks below.

In all of the prior art references cited in the final Office Action, where there is a water seal in a water space outside an (inner) pipe, if the seal were able to permit a gas flow, gas could flow through the annular space between the inner and outer pipes or between a single pipe and the well hole during only the installation processes for the pipe. But, during a normal operating condition, the prior art seals would seal the respective (annular) space outside the (inner) pipe sufficiently to prevent gas flow, in addition to stopping the flow of water or liquid through the annular space or the well hole outside the pipe. The claims are concerned with the normal operating condition, not with the unusual and different conditions of assembly of a pipe, assembly of a seal on a pipe, assembly of a double walled pipe with a seal. The last of these

assemblies requires a temporary accommodation of the pipes and the seals in order to assemble them at all, as discussed below.

The undersigned refers to the Examiner's Interview Summary which, on the continuation page, states Applicants' arguments in summary form without, however, mentioning that Applicants' claims are concerned with the normal operating condition of the subsea double-walled pipeline, as claim 1 originally stated and as amended claim 1 makes clearer.

In the Final Office Action, claim 17 was objected to as being substantially duplicative of claim 1. Claim 17 has been canceled. In addition, claim 18 has been canceled.

Claims 1-3, 13-15 and 17 (17 canceled) were rejected as anticipated under 35 U.S.C. § 102(b) by the published article "Innovations Key Reeled Pipe-In-Pipe Flow Line" at page 50, third column, in a paragraph which in pertinent part reads:

> Water-stop design is based on the lip-seal concept (Fig. 8). The seal is energized if the annulus becomes flooded. When pressure is applied, the water-stop lips are forced into the annulus wall creating a seal. The reason for selecting this concept is that the seal is not energized until required ensuring that the seal exists in an unstressed state until activated by a flooded annulus.

Based on the quoted passage, the Examiner stated in the Office Action:

> The assembly has lips (blocking means) that are moved into sealing position under fluid pressure.

During the interview, the Examiner stated that she inferred from the article and therefore noted in the Office Action that until liquid under pressure is present in the annular shape of the disclosed pipeline in the article, the lips of the water stop seal were not in contact with or not in sealing contact with the interior of the outer pipe and there was instead such absence of a seal that gas could pass through the annular space. At the interview, it was pointed out that the article does not suggest there is ever a time of normal pipeline operation when there is no seal at the water stops and the article never suggested the passage of gas through the annular space because gas flow through the annular space was never mentioned or suggested.

Page 46 of the article shows that the publication concerns BP's Nile project in the Gulf of Mexico. The Nile pipeline was supplied by Coflexip Stena Offshore Ltd. in 2001. That company was subsequently merged into Technip France S.A., the Assignee hereof. The authors of the article were involved with the design and assembly of the Nile pipeline. Submitted

herewith is a Declaration by one of the authors in which he explains the relevant structure of that Nile pipeline including the seal assembly and explains its installation and its normal operating conditions.

The Nile pipeline is disclosed as a double-walled pipeline including an insulation layer supporting inner pipe, an outer pipe around the inner pipe, an annular space between the outside of the insulation layer and the interior of the outer pipe and water stops (seal assemblies) positioned at spaced locations along the inner pipe and in the annular space to seal the space in the event of leakage or entry of sea water into the annulus. There is no suggestion in the article or in the actual Nile pipeline that the water stops at any time did not seal the annular space, even without the presence of water.

The article does not contemplate migration of gas along the annular space or past the water stops and provides no structure to enable that. Each water stop was secured around the inner pipe, and included outer lips facing in a direction from which leakage water would pass along the annular space. The lips would normally engage the interior of the outer pipe. There would be just a light touch between the lips of the water stop and the outer pipe, enough to position the lips at the interior of the outer pipe so that in the event of water under pressure passing along the annular space and pressing on the lips, the lips would be in position to then be energized and forced against the outer pipe creating the liquid flow seal. Thus, while the lips rested on the inner pipe, the lip seal was not energized until required to seal against passage of water. Prior to being energized, the lips were in position so that they sealed the annular space against the flow of gas, although gas flow was not contemplated or disclosed.

It is noted that an assembled double-walled pipe, with an inner pipe and an outer pipe, bends and flexes when it is installed and the inner pipe also bends and flexes inside the outer pipe when heated hydrocarbon flowing through the insulated inner pipe may temporarily elongate the inner pipe with reference to the outer pipe, and the inner pipe will decrease in length during temporary halts in the flow of hydrocarbon. The water stops affixed to the inner pipe will shift along and with respect to the outer pipe as the pipes bend and flex and as the inner pipe changes length. Hence, while the lips of the water stop or stops are against the inner surface of the outer pipe, they are not normally energized or forced against the outer pipe, because continuous energizing would cause such rubbing contact as would damage the water stops over time before they might be required acted as water stops.

The Examiner was informed about and Applicants' representatives orally described a video showing the installation process of the Nile pipeline for an inner pipe bearing water stops inside an outer pipe. Because the water stops had lips that were so shaped and so biased as to normally engage the interior of the outer pipe during a normal operating condition, in order for the water stops to not resist the inner pipe being inserted into the outer pipe, during installation, the sealing lips of the water stops were temporarily deformed inwardly, providing sufficient clearance to enable the inner pipe bearing the water stops to be inserted into the outer pipe. Once the inner pipe was positioned inside the outer pipe, the water stops could be released to always contact the interior of the outer pipe and thereby seal the annular space, both prior to and during the operating conditions, so that gas flow would normally be blocked during a normal operating condition.

Page 51, first column, last paragraph, of the article describes installation of the water stops saying that the lips of the water stops normally engage the interior of the outer pipe, which would block the flow of gas along the annular space during a normal operating condition:

> The water-stop was pushed 5m inside the carrier pipe, as it entered the pipe, the lips made contact with the carrier pipe's inner surface. The water-stop was pulled out of the pipe and the lips inspected for damage. This procedure was repeated six times with inspection of the sealing surfaces after each stroke.

In summary, the article describes different action of the water stops during normal operating conditions than the action of the seal assembly defined in claim 1. The article does not discuss the possibility of gas flow through the annular space or a design of the water stops that would either enable or not enable that gas flow, since gas flow is not discussed.

The Declarant of the attached Declaration is an author of the article and a person skilled in the relevant art. He explains that the water stops of the Nile pipeline described in his article have sealing lips that are always in gas sealing contact with the inner surface of the outer pipe. This would prevent gas flow along the annular space. A person skilled in the art, who would contemplate a construction of a seal assembly for a double-walled or pipe-in-pipe pipeline and who would read the article would be aware of a lip seal type water stop, would be aware that the lip seal is always in contact with the inner surface of the outer pipe, would be aware that if the seal permitted itself to be bypassed for gas flow, that would provide a free water leakage path that would prevent water from "energizing" the seal and that person would not therefore be

taught, have suggested to him or believe that gas flow through the annular space would be possible. A person skilled in the art would understand the disclosure of the article and would not be taught or be caused to believe that the water stops described were capable of permitting gas to pass the sealing water stops.

Claims 1-3, 13-15 are allowable.

Claims 1-4 and 14 were rejected under 35 U.S.C. § 103(a) as obvious over a combination of the admitted prior art of Applicant's specification, pages 1-3, in view of the U.S. patent to Bousche. The Examiner asserted that Bousche teaches a sealing assembly that is activated from a non-sealing position to a sealing position by liquid in the annular space, which space in Bousche is really a well hole. The Examiner particularly noted the liquid sensitive material 25 that holds the blocking means in the form of lips 20 in the non-sealing position until activated. Reconsideration of the rejection of these claims over the applied combination of prior art is requested.

As noted by Applicants' representatives during the interview and again here, the Bousche tape 25 which dissolves in the well hole, which hole was analogized to an annular space, is not present or operative during any normal operating condition of this well hole pipe. At several locations, the Bousche specification indicates that the restraint 25 for the expandable membrane 20 is for the purpose of installing the single walled pipe with its sealing membranes into the well hole, and that the restraint on the membranes is removed or rendered inoperative before any normal operating conditions occur. As the specification of Bousche states at col. 2, lines 13-18:

> ...constraining the [resilient sealing] ring in a collapsed position around the tubular [pipe] by means of a tape and/or binder which gradually dissolves in a downward environment; placing the tubular in the inflow region of the well; and allowing the tape and/or binder to dissolve thereby allowing at least part of the resilient sealing ring to expand radially in the annular space...

At column 2, lines 23-29:

> ...each sealing ring has one end which is permanently clamped to the permeable tubular and a resilient lip-shaped other end which is temporarily clamped around the tubular during installation of the tubular in the well and which is released after installation such that the resilient lip-shaped other end unfolds itself and expands radially.

At column 2, lines 45-49:

> Thus, after installation and flushing away of the restraining binder or tape the resilient lip-shaped end of the sealing ring will unfold in the annular space between the permeable well tubular and the open hole....

At column 3, lines 19-25 a temporary dissolvable tape is described. At column 3, lines 39-42, the specification reads:

> Fig. 4 shows how the membrane 20 and spring blades 21 are, during descent of the liner into the well [i.e., installation] wrapped around the liner 22 by means of a tape 25 which slowly dissolves downhole.

Fig. 3 of Bousche illustrates the use condition with the membrane 20 expanded out, that is the normal operating condition, at which gas flow in the annular space would be blocked. Fig. 4 does not show similar action at all, having no arrows indicating movement of materials, but rather shows a temporary installation condition, not a normal operating condition. Further, there is no suggestion that gas flow through the well hole would be contemplated or accounted for in Bousche.

Bousche does not concern a double walled pipe, but rather concerns a single walled pipe in a well hole. A single walled pipe is not a double walled pipe, and a well hole is not an outer pipe of a double-walled pipe-in-pipe and a single walled pipe has no annular space between two pipes . One skilled in the art would not look to teachings of Bousche in any event when contemplating the design of a seal for a double walled pipe-in-pipe installation. Claims 1-4 and 14 are allowable.

Claims 1-3, 7, 12 and canceled claims 17 and 18 were rejected under 35 U.S.C. § 103 as obvious over a combination of the admitted prior art and the publication to Hester.

It was noted that Hester teaches a seal assembly that is activated from non-sealing to sealing by liquid in an annular space. Reconsideration is requested.

Hester is not concerned with a normal operating condition where a fluid, like a hydrocarbon, may flow through an inner pipe and gas may flow through an annular space between an inner and an outer pipe. It is not the presence of openings in a sealing assembly that is claimed in claims 1, et seq., of this application, but rather a sealing assembly which has a normal operating condition permitting the flow of gas past the seal and a further normal operating condition such that when water impinges on the water stop, the stop becomes sealed

and gas flow along the annular space is prevented. Nothing comparable to that is suggested for a normal operating condition or in the structure disclosed in Hester.

The Office Action particularly refers to Figure 7 of Hester and orifices 63 with valves therein. But the description of Hester's Fig. 7 at column 4, lines 34-49 shows that Hester's orifices or passages 63 are fluid flow restrictors and that the valves 65 in those passages restrict the fluid flow, but do not cut it off. As the specification states at column 4, lines 38-42:

> A pressure responsive variable orifice valve 65 is in each passage 63. Each valve 65 will reduce the flow area though passage 63 in response to an increase in differential pressure across blocking member 61.

Gas flow through Hester's passages 63 is not contemplated, restricting or sealing against a gas flow is therefore not contemplated, as gas flow along an annular space is not contemplated. A normal operating condition enabling gas flow through an annular space and fluid flow through an inner pipe is not contemplated or suggested. In addition, Hester does not disclose a double walled pipe or a pipe-in-pipe installation. It is submitted that one skilled in the art would not look to Hester for teachings relevant to the problem to be solved by the present invention and, in any event, would not receive any teaching relevant to the claims hereof. Claims 1-4 and 14 are allowable.

Claims 4 and 16 were rejected under 35 U.S.C. 103(a) as obvious over Applicants' article in view of the patent to Bousche. The Examiner notes that while the article does not disclose a restraining means around the annular member, Bousche teaches that. Reconsideration is requested.

The inapplicability of Bousche to Applicants' arrangement, wherein Applicants provide for transmission of gas through the annular space during a normal operating condition and seal against that gas transmission upon water leakage, is applicable here. Bousche does not disclose a structure that is capable of doing that or that deals with a normal operating condition as Applicants have claimed. The publication article does not deal with such a condition either. Since neither reference deals with the condition and neither reference teaches a structure that would capable of operating in the normal operating condition or in a situation of leakage, as Applicants have claimed, the combination of references also does not suggest Applicants' normal operating condition of claim 1 nor the condition of leakage of claim 1 nor the sealing that occurs upon the condition of leakage as in claim 1. Substituting any teaching from Bousche into the

article would not suggest claim 1 or any of the claims, because it does not suggest Applicants' normal operating condition or Applicants' sealing condition. Accordingly, claims 4 and 16 are allowable.

Applicants appreciate the indication of allowability of claims 5, 6, and 8-11. These claims are directed to particular embodiments. It is believed that broader scope claim 1 upon which they are dependent is also allowable.

Applicant notes the Examiner's Response to the Arguments presented in the first Office Action. However, in view of the amendments herein to the claims and the points made above, it is submitted that the Response to the Arguments in the first Office Action are moot and not applicable to the present claims. It is submitted therefore that the remaining claims 1-3 and 5-12 are allowable.

Respectfully submitted,

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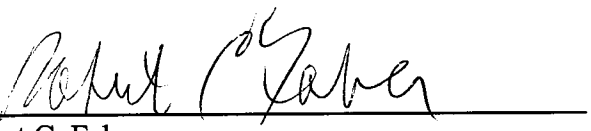

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